

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2005/000040

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7): A61K 48/00, A61K 31/7088, A61K 31/7125, A61K 38/19, A61P 35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(7): A61K 48/00, A61K 31/7088, A61K 31/7125, A61K 38/19, A61P 35/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Canadian Patent Database, Delphion, PubMed, STN

Search terms: antisense, ribonucleotide reductase, R2, cancer, tumor, immunotherapeutic, cytokine, interferon, interleukin, IL, colony-stimulating factor, CSF, chemotherapeutic

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| Y | LEE Y et al GTI-2040, an antisense agent targeting the small subunit component (R2) of human ribonucleotide reductase, shows potent antitumor activity against a variety of tumors. CANCER RES 01.06.2003 Vol 63, pages 2802-2811 Page 2803, first column, second paragraph; page 2808, second column, last paragraph; Fig. 1 | 1-55 |
| Y | WO 0047733 A1 (GENESENSE TECHNOLOGIES INC.) 17.08.2000 Whole document | 1-55 |
| Y | WO 9800532 A3 (WRIGHT JA & YOUNG AH) 08.01.1998 Whole document | 1-55 |

Further documents are listed in the continuation of Box C.

See patent family annex.

| | |
|---|--|
| * Special categories of cited documents : | |
| "A" | document defining the general state of the art which is not considered to be of particular relevance |
| "E" | earlier application or patent but published on or after the international filing date |
| "L" | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) |
| "O" | document referring to an oral disclosure, use, exhibition or other means |
| "P" | document published prior to the international filing date but later than the priority date claimed |
| "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "Y" | document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "&" | document member of the same patent family |

Date of the actual completion of the international search

11 May 2005 (11.05.2005)

Date of mailing of the international search report

07 June 2005 (07.06.2005)

Name and mailing address of the ISA/CA
Canadian Intellectual Property Office
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INTERNATIONAL SEARCH REPORT

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|-----------------------|
| Y | AGRAWAL S & KANDIMALLA ER Antisense and/or immunostimulatory oligonucleotide therapeutics. CURR CANCER DRUG TARGETS 2001 Vol 1, pages 197-209 Whole document | 1-55 |
| Y | VOSE JM et al Update on epidemiology and therapeutics for non-Hodgkin's lymphoma. HEMATOLOGY (AM SOC HEMATOL EDUC PROGRAM BOOK, The American Society of Hematology) 2002 pages 241-262 Page 249; page 250, second column to page 251, first column | 1-55 |
| Y | LEPOIVRE M et al Alterations of ribonucleotide reductase activity following induction of the nitrite-generating pathway in adenocarcinoma cells. J BIOL CHEM 25.08.1990 Vol 265(24), pages 14143-14149 Whole document | 1-55 |
| Y | MADER RM et al Transcription and activity of 5-fluorouracil converting enzymes in fluoropyrimidine resistance in colon cancer <i>in vitro</i> . BIOCHEM PHARMACOL 1997 Vol 54, pages 1233-1242 Whole document | 1-55 |
| Note: * For the "Y" indications, LEE et al or WO 0047733 or WO 9800532 can be individually combined with any one of AGRAWAL & KANDIMALLA, or VOSE et al, or LEPOIVRE et al, or MADER et al. | | |
| A | PAVLOFF N et al Sequence analysis of the large and small subunits of human ribonucleotide reductase. DNA SEQUENCE - J DNA SEQUENCING AND MAPPING 1992 Vol 2, pages 227-234 Whole document | 1-55 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/CA2005/000040

| Patent Document Cited in Search Report | Publication Date | Patent Family Member(s) | Publication Date |
|---|---------------------|--|--|
| WO9800532 A3 | 08-01-1998 | AU3249897 A CA2259123 A1 EP0954574 A2 JP2000513230T T WO9800532 A2 | 21-01-1998 08-01-1998 10-11-1999 10-10-2000 08-01-1998 |
| WO0047733 A1 | 17-08-2000 | AU780455 B2 AU2529200 A BR0008788 A CA2366487 A1 CN1345373 A EP1153128 A1 IL144727D D0 JP2003500006T T NZ514090 A US6121000 A | 24-03-2005 29-08-2000 06-11-2001 17-08-2000 17-04-2002 14-11-2001 30-06-2002 07-01-2003 28-01-2005 19-09-2000 |

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. Claim Nos. : 18 to 34

because they relate to subject matter not required to be searched by this Authority, namely :

Although claims 18 to 34 encompass a method of treatment of the human/animal body which this Authority is not obliged to search under Rule 39.1(iv) of the PCT, the search has been carried out based on the alleged effects of the compounds referred to therein.

2. Claim Nos. :

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :

3. Claim Nos. :

because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. :

Remark on Protest The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

No protest accompanied the payment of additional search fees.